KOTSERUBA, V.V.; MUSHENKO, S.P.

Conditions governing the formation of the large oil and gas pools in the Anastasiyevka-Krasnodar anticlinal zone. Neftegaz, geol. i geofiz. no.11:16-21'63 (MIRA 17:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologorazvedochnyy neftyanoy institut i Krasnodarskiy uchebno-konsul'tatsionnyy punkt Vsesoyuznogo zaochnogo politekhnicheskogo instituta.

KOTSERUBA, V.V.; MUSHENKO, S.P.

Primary migration of oil from miocene and pliocene sediments in the Western Kuban trough. Neftegaz. geol. i geofiz. no.3:19-21 '65. (MIRA 18:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologorazvedochnyy neftyanoy institut, Moskva, Krasnodarskiy filial Vsesoyuznogo zaochnogo politekhnicheskogo instituta.

KHARIN, N.N.; SHUTENKO, V.N.; MUSHENKO, V.G.

Characteristics of the zooplankton and zoobenthos of ponds in Rostov Province. Trudy probl. i tem. soveshch. no.2:130-137 '54. (MLRA 8:5)

(Rostov Province--Fresh-water fauna)
(Rostov Province--Ponds)

Mushenko, V.G

B-6

USSR / General Biology. General Hydrobiology

Abs Jour : Ref Zhur - Biol., No 1, 1958, No 349

Author : Mushenko, V.G.

Inst : Not Given

Title : The Effect of Spring Flood Currents of Formation of Soils and Zoobenthos in Lake Bottom Land

Orig Pub : Sb. nauchn.-issled. rabot Azovo-Chernomorsk. s.-kh. in-ta, 1956, 14, 173-183

Abstract : The formation of bottom soils, the quantitative changes and territorial shifts of different groups of zoobenthos in Lake Derganovo (Don-Aksay bottom land) under the influence of flood currents.

Card : 1/1

MUSHENKO, V.G.

Vertical distribution of benthic animals in reservoir bottoms of the Don-Aksay flood plain. Trudy Gidrobiol. ob-va 11:122-131 '61. (MIRA 15:1)

1. Azovo-Chernomorskiy sel'skokhozyaystvennyy institut, Novocherkassk.

(Don Delta--Benthos)

S/081/61/000/013/014/028
B110/B205

AUTHORS: Mushenko, V. M., Mushenko, D. V.

TITLE: Effect of unsaturated hydrocarbons on the antiknocking characteristics of aviation gasolines

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 13, 1961, 524, abstract 13M278 (Tr. Vses. n.-i. in-t neftekhim. protsessov, 1960, vyp. 3, 44-48)

TEXT: The authors studied the effect of admixtures of amylenes, obtained by dehydration of isoamylene alcohol, on the octane numbers of mixtures of Б-70(B-70) gasoline with commercial isooctane and of catalytically cracked gasoline. On the basis of the studies performed it was recommended to add 5-20% of the commercial pentane - amylene fraction to aviation gasolines obtained by direct distillation in order to increase their octane numbers by 1-3. [Abstracter's note: Complete translation.]

Card 1/1

MUSHENKO, V.M.; MUSHENKO, D.V.

Sulfuric acid refining of catalytically cracked gasolines. Trudy VNIINeftekhim no.3:49-57 '60. (MIRA 14:2)
(Airplanes--Fuel)

24830
S/081/61/000/011/037/049
B110/B201

5.3300

AUTHORS: Mushenko, V. M., Mushenko, D. V.

TITLE: Antiknocking properties of aviation gasoline from catalytic cracking

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 11, 1961, 486, abstract 11M219 (11M219) (Tr. Vses. n.-i. in-t neftekhim. protsessov, 1960, vyp. 3, 58-69)

TEXT: A study has been made of the antiknocking properties of fractions obtained by distillation on the Gadaskin column and two-stage treatment (catalytic cracking and purification of the typical aviation component of Kalinskoye gas oil (Baku). The properties of initial gasoline were d_4^{20} = 0.7418; initial boiling point = 48°C; boiling out of 97.5% at 168°C; chemical group composition in %: olefins = 3.1; aromatics = 34.2; paraffins = 49.4; naphthenes = 13.0. Octane number (motor method) in pure form = 81.4; with 3 ml P-9 (R-9) per kg = 94.2. A study of the antiknocking properties of the fractions of this gasoline showed that the

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Antiknocking properties of ...

highest octane number on addition of 3 ml R-9 is exhibited by the fraction 25-35°C which consists of 93.5% isopentane, 3.2% pentylene, and 3.3% n-pentane. The octane numbers of the following fractions drop rapidly, pass through a minimum with fraction 95-105°C, and rise again thereafter. The octane numbers of the pure fractions also change, but the tail fractions have higher octane numbers than the head fractions; this is related to the accumulation of aromatic hydrocarbons in them. Dearomatizing of the fractions by a double treatment with 150 wt.% H_2SO_4 caused the octane numbers in the fractions to drop sharply, the octane numbers of the dearomatized fractions dropping regularly with a rise of the boiling temperature. Fraction 85-125°C is shown to contain little aromatics, and to consist chiefly of paraffin and naphthenic hydrocarbons with low octane numbers. The removal of this fraction from the gasoline leads to a rise of the octane number of gasoline with 3 ml R-9 from 94.2 to 98 by the motor method, and from 96.9 to 99.1 by the 1-C (1-S) method. Methods of refining the fraction 85-125°C are suggested: a) by separation of the fraction with the aid of a selective solvent (SO_2) into an aromatic and a naphthenic paraffin part, and subsequent

Antiknocking properties of ...

introduction of aromatics into the gasoline; b) catalytic reforming. The latter is the most expedient way of improving the octane number of this fraction. Catalytic reforming on aluminum-molybdenum catalysts permits 80% aviation gasoline with the octane number 89 to be obtained in pure state (motor method). Addition of a reformed substance to the remaining fractions allows gasoline Б 100/130 (B 100/130) to be produced without alkylate addition. [Abstracter's note: Complete translation.]

Card 3/3

MUSHENKO, D.V.; MUSHENKO, V.M.; TEREBILOVA, M.A.

Determination of fluorine in an aluminosilicate catalyst and in alumina by hydrolysis with superheated steam. Trudy VNIINeftekhim no.3:112-115 '60. (MIRA 14:2)
(Fluorine—Analysis) (Aluminosilicates)
(Alumina)

ACC NR: AP7002624 (A,N) SOURCE CODE: UR/0413/66/000/023/0159/0159

INVENTOR: Maslyanskiy, G. N.; Kamusher, G. D.; Mushenko, V. M.

ORG: None

TITLE: A method of producing a platinum catalyst. Class 12, No. 108268

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 23, 1966, 159

TOPIC TAGS: industrial catalyst, platinum, gasoline, aluminum oxide, CATALYTIC REFORMING

ABSTRACT: This Author's Certificate introduces: 1. A method of producing a platinum catalyst for reforming gasoline by treatment of granulated aluminum oxide in a solution of chloroplatinate. To improve the activity and stability of the catalyst, the depth of platinum penetration into the carrier granule (tablet) is controlled by adding certain quantities of organic or mineral acids to the chloroplatinate solution. 2. A procedure for carrying out this method in which the process is accelerated by maintaining a temperature above 20°C.

SUB CODE: 07, 21 / SUBM DATE: 28Jul55

Card 1/1

PALKIN, A.P.; AFINOGENOV, Yu.P.; MUSHENKO, Ye.S.

Interaction in the system $AgCl + CuCl + Pb \rightarrow PbCl_2 + Ag + Cu$.
Zhur. neorg. khim. 8 no.11:2580-2584 N '63. (MIRA 17:1)

1. Voronezhskiy gosudarstvennyy universitet.

SHKARENKO, Z.S., dots.; MUSHENKOVA, N.F., assistent

Clinical X-ray analysis of eye injuries caused by foreign bodies.
Sbor.trud.Tashk.KBNP no.1:187-192 '56 (MIRA 11:3)
(EYE--FOREIGN BODIES)

ABDURASULOV, D.M., prof.; NIKISHIN, K.Ye., dotsent; MUSHENKOVA, N.F., kand. med.nauk

Tomography of the heart and large vessels. Med. zhur. Uzb. no.11: 20-24 N '61. (MIRA 15:2)

1. Iz kafedry rentgenologii i meditsinskoy radiologii (zav. - prof. D.M.Abdurasulov) Tashkentskogo gosudarstvennogo instituta usovershenstvovaniya vrachey.
(HEART--RADIOGRAPHY) (BLOOD VESSELS--RADIOGRAPHY)

TAGIROV, K.Kh.,dotsent; MUSHENKOVA, S.F.; BLAGORODOVA, G.N.

Case of a fetus in the abdominal cavity of a child. Khirurgiia, 33 no.1:112-113 Ja '57 (MLRA 10:4)

1. Iz kafedry khirurgii detskogo vozrasta (zav.-dotsent K.Kh. Tagirov) Tashkentskogo meditsinskogo instituta imeni V.M. Molotova.

(FETUS,
male fetus in abdom. cavity of 16-month-old male inf.) (Rus)
(ABDOMEN,
same)
(TERATOMA, case reports,
same)

MUSHETSYANU, K.; MUSHETSYANU, V.; [illegible]

Role of nuclear monocyte fragmentation [illegible] atypical forms of infectious mononucleosis. Lab. delo, 1 pereli. krovi no.2:35-37 '55.

1. Laboratoriya eksperimental'noy [illegible] Kaltsya, Bukharest, Rumyniya.

MUSHKETYANU, K., MUSHKETYANU, V., [illegible].

Role of nuclear monocyte fragmentation in the [illegible] of atypical forms of infectious mononucleosis. Probl. gemat. i perel. krovi no.2:35-37 '65.

1. Laboratoriya [illegible] Kalinya, Bubbergan, Kuayu ya.

MNDZHOYAN, A.L.; TATEVOSYAN, G.T., akademik; AGBALYAN, S.G.; MUSHETYAN, A.V.

Research in the field of derivatives of substituted acetic acids. Dokl. AN Arm. SSR 27 no.1:41-47 '58. (MIRA 11:9)

1.Institut tonkoy organicheskoy khimii AN ArmSSR. 2.AN ArmSSR (for Tatevosyan).

(Acetic acid)

MUSHEVA, L.

TAGER, A.; IOVLEVA, M.; KANTOR, T.; MUSHEVA, L.

Vitrification temperatures and fluidity of rubbers of various molecular weight. Zhur.prikl.khim. 27 no.11:1227-1230 N '54. (MLRA 7:12)
(Rubber)

MUSHIN, A. Yu. Cand Med Sci -- (diss) "Certain problems of the reduction of traumatism and restoration of working capacity after traumas incurred in railroad transport (According to data of the former Latvian Railroad)." Riga, 1956. 21 pp (Inst of Experimental Med, Acad Sci Latvian SSR), 210 copies (KL, 3-58, 99)

MUSHIN, A. Z.

"Activating Hot Water Input Wells in an OilBearing Area," Gostoptekhizdat, 1953

15-57-4-5667

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 4, p 220 (USSR)

AUTHOR: Mushin, A. Z.

TITLE: Experiments on Hydraulic Rupture of Petroleum-Bearing Strata in the USSR (Rezul'taty opytnykh rabot po razryvu plasta na promyslakh Soyuza)

PERIODICAL: V sb: Metody uvelicheniya nefteotdachi plastov. Moscow, Gostoptekhizdat, 1955, pp 74-79

ABSTRACT: Studies of hydraulic rupture of petroleum-bearing strata were conducted over a 10-month period in 1954. Laboratory and field tests showed that the stratum ruptures at lower pressure in cycling a liquid with good seepage qualities than in cycling a liquid with poor seepage qualities. Rupture occurs horizontally in most cases when a penetrating liquid is used. Vertical rupture ordinarily occurs with the use of a

Card 1/2

Experiments on Hydraulic Rupture (Cont.)

liquid with low penetrability. Laboratory experiments conducted in the Tatneft' Central Scientific Research Laboratory by Glumov permit the following conclusions: 1) the wells should be swabbed with sulfite-alcohol spent liquor after rupture; 2) liquids containing sand can not be forced deeply in the stratum under high pressure. The liquid with sand, remaining at the bottom of the hole, helps in preserving the open fissures at the sides of the well. Liquids for cycling of sand were analyzed and tested by the Ufa Scientific Research Institute for Petroleum and the USSR Scientific Research Institute for Petroleum. A formula was developed for an acid-kerosene emulsion to be used in rupturing petroleum-bearing carbonate oil traps. An experimental model of a recording pressure gauge for 550 atmospheres of pressure was designed. The GrozNII and OKB strata-rupturing packers, which will withstand a drop in pressure to 300 atmospheres and over, were designed and constructed. Over 200 tests of strata rupturing in pumping wells and pressure wells were conducted in 1954. More than 60 percent gave positive results.

Card 2/2 V. B. O.

Mushin, Aron Zinov'yevich

FANIYEV, Ruben Davidovich; MUSHIN, Aron Zinov'yevich; PETROVA, Ye.A., vedushchiy red.; POLOSINA, A.S., tekhn.red.

[New developments in the technology of petroleum extraction] Novoe v tekhnologii i tekhnike dobychi nefti. Moskva, Gos.nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, 1958. 99 p. (MIRA 11:2)
(Petroleum industry)

APEL'TSYN, I.E., doktor tekhn.nauk; BARS, Ye.A., kand.geol.-min.nauk; BORISOV, Yu.P., kand.tekhn.nauk; VELIKOVSKIY, A.S., prof.; VYSOTSKIY, I.V., kand.geol.min.nauk; GOVOROVA, G.L., dots.; DAKHNOV, V.N., prof. ZHDANOV, M.A., prof.; ZHUKOV, A.I., dots.; KOTYAKHOV, F.I., prof.; KREMS, A.Ya., doktor geol.-min.nauk; MURAV'YEV, I.M., prof.; MUSHIN, A.Z., inzh.; NAMIOT, A.Kh., kand.tekhn.nauk; KHODANOVICH, I.Ye., kand.tekhnnauk; KHLYSTOV, V.T., inzh.; CHERNOV, B.G., kand. tekhn.nauk; SHUROV, V.I., dots.; SAVINA, Z.A., vedushchiy red.; POLOSINA, A.S., tekhn.red.

[Manual fo petroleum extraction] Spravochnik po dobyche nefti. Pod obshchei red. I.M.Murav'eva. Moskva, Gos. anuchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry. Vol. 1. 1958. 540 p. (MIRA 11:4)
(Petroleum industry)

ADONIN, A.N., kand.tekhn.nauk; ALIVERDIZADE, K.S., kand.tekhn.nauk; AMIYAN, V.A., kand.tekhn.nauk; ANISIMOV, Ye.P., inzh.; APRESOV, K.A., dotsent; BELEN'KIY, V.N., inzh.; BOGDANOV, A.A., kand. tekhn.nauk; GORBENKO, L.A., inzh.; DANIELYAN, A.A., inzh.; DAKHNOV, V.N., prof.; IVANKOV, R.A., inzh.; KORNEYEV, M.I., inzh.; LAVRUSHKO, P.N., inzh.; LESIK, N.P., inzh.; LOVLYA, S.A., kand. tekhn.nauk; LOGINOV, B.G., kand.tekhn.nauk; MININZON, G.M., kand. tekhn.nauk; MOLCHANOV, G.V., kand.tekhn.nauk; MURAV'YEV, I.M., prof.; MUSHIN, A.Z., inzh.; OL'SHVANG, D.Ye., inzh.; PODGORNOV, M.I., inzh.; FAYERMAN, I.L., kand.tekhn.nauk; FOKINA, Ye.D., inzh.; EFISHEV, A.M., inzh. [deceased]; YERSHOV, P.R., vedushchiy red.; MUKHINA, E.A., tekhn.red.

[Reference book on petroleum production] Spravochnik po dobyche nefti. Moskva, Gos.nauchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry. Vol.2. 1959. 589 p. (MIRA 13:2)
(Oil fields--Production methods)

MUSHIN, A.Z.; ZOLOYEV, T.M.

Means for improving the tapping of producing layers in oil, injection, gas, and test wells. Geol. nefti i gaza 4 no.5:38-42 My '60. (MIRA 13:9)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut i Tuymazaneft'.

(Oil well drilling)

KRIVOSHEYEV, V.I.; MUSHIN, A.Z.; GOMBINER, B.Ya.; KASHNITSKIY, L.A.

Large-scale introduction of hydraulic fracturing in oil fields. Neft. khoz. 38 no.4:8-14 Ap '60. (MIRA 14:8)
(Oil wells--Hydraulic fracturing)

MUSHIN, A.Z.; SELYUNINA, T.N.

Additive for thickening water in hydraulic fracturing in injection wells. Trudy VNII no.35:40-49 '61. (MIRA 15:1)
(Oil wells--Hydraulic fracturing)

MUSHIN, A.Z.; SELYUNINA, T.N.; USACHEV, P.M.; LESIK, N.P.

Results of laboratory studies and field tests of asphaltite as a fluid loss additive for hydraulic fracturing. Neft. khoz. 40 no.7:43-49 Jl '62. (MIRA 17:3)

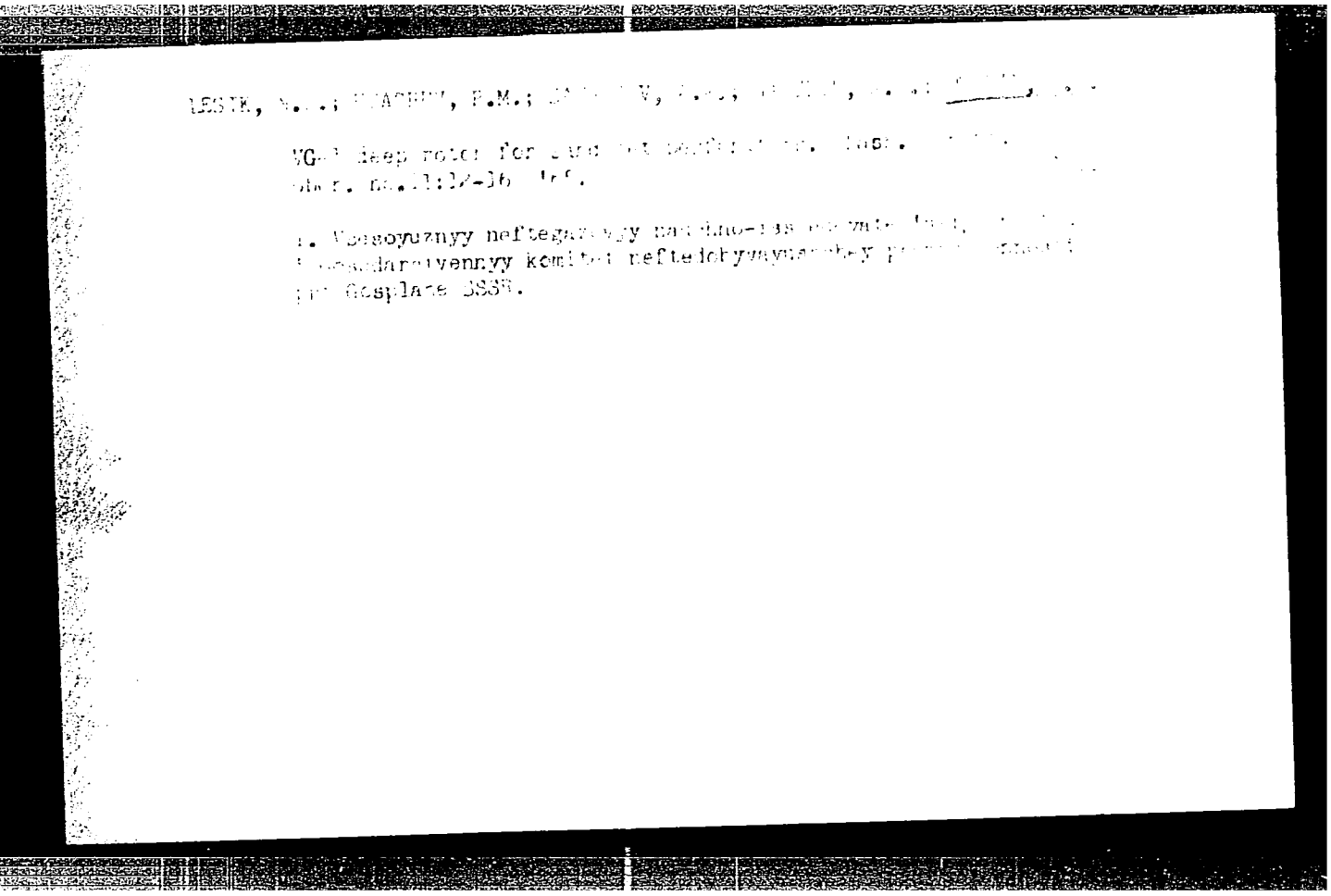
MUSHIN, A.Z.

Seminar on the exchange of experience in and study of the use of jet perforation methods and equipment utilizing sand laden fluids. Neft. khoz. 40 no.12:63-65 D '62. (MIRA 16:7)

(Petroleum production)

MUSHIN, A.Z.

Rapid development of the rich oil and gas fields of western Siberia and Mangyshlak Peninsula. Geol. nefti i gaza 8 no.12: 66-67 D '62. (MIRA 18:2)



LESIK, [illegible]; [illegible], P.M.; [illegible]

[illegible] deep relief for [illegible]. [illegible]
[illegible]. no.1:24-26 '61.

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy [illegible]
[illegible]darstvennyy komitet neftedobyvayushchey promyshlennosti
pri Gosplane SSSR.

USSR/Farm Animals. The Swine

Q-4

Abs Jour : Ref Zhur - Biol., No 11, 1958, No 50074

Author : [redacted], Shurmukhin A.F.
Inst : Sverdlovsk Farm Institute
Title : Experimental Utilization of Sapropel in Fattening of Swine

Orig Pub : Tr. Sverdl. s.-kh. in-ta, 1957, 1, 207-209

Abstract : Two groups of ½ year old sows, the hybrids of large white and Braith's breeds (13 animals in each group), were fattened for a period of 60 days. Each sow of the test group received 100 gr of sapropel before being fed. This resulted in a 132 gr (16 percent) increase of weight gains as compared to control animals.

Card : 1/1

MUSHIN, I.A.

Considering surface nonuniformities by the control [illegible] sensitivity method under conditions in the eastern part of the Russian Platform. Razved. geofiz. no.[illegible] '65.

[illegible]

MUSHIN, I. A.

Spatial observations by the controlled directional sensitivity method in the reef zone of the cis-Ural region in Orenburg Province. Geol. nefti i gaza 7 no.4:52-55 Ap '63. (MIRA 16:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut geofizicheskikh metodov razvedki.

(Orenburg Province—Seismic prospecting)

MUSHIN, I.A.; SHEVCHENKO, L.B.; SHNEYERSON, M.B.

Characteristics of using the controlled directional sensitivity method in the eastern regions of the Russian Platform. Razved. geofiz no.2: 39-52 '64. (MIRA 18:5)

MUSHIN, I.A.

Experience in spatial observations by the controlled directional sensitivity method in seismic investigations of the crystalline basement in southeastern Bashkiria. Neftegaz. geol. i geofiz. no. 10:24-28 '65. (MIRA 18:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut geofizicheskikh metodov razvedki.

SHOCHKOP, Sh.; MUSHINA, L.N.

Methodology of tomography in lesions of the middle [illegible]. Vest. rent. i rad. 40 no.3:[illegible] My-Je '65. (MIRA [illegible])

1. 2-ya kafedra rentgenologii i radiologii (zav. - prof. V.V. Sokolov) TSentral'nogo instituta usovershenstvovaniya vrachey, Moskva.

MUSHINA, L. N.: Master Med Sci (diss) -- "The effect of physical load, environmental temperature, and blood loss on the seriousness of acute radiation disease (Experimental investigation)". Moscow, 1958. 16 pp (Min Health USSR, Central Inst for the Advanced Training of Physicians), 200 copies (KL, No 1, 1959, 171)

MUSHINA, L.N., kand. med. nauk

Functional duodenostasis. Vest. rent. i rad. 40 no.4:31-33 Jl-Ag '65. (MIRA 18:9)

1. 2-ya kafedra rentgenologii i meditsinskoy radiologii (zav.-prof. Yu.N. Sokolov) TSentral'nogo instituta usovershenstvovaniya vrachey, Moskva.

ROZENSHTRAUKH, L.S. (Moskva, D-80, Volokolamskoye shosse, d. 14b,kv.84)
MUSHINA, L.N. (Moskva, D-80, Volokolamskoye shosse, d. 14b, kv.84)
BUDAVARI, K.Yu. (Moskva, D-80, Volokolanskoye shosse, d. 14b, kv.84)

Bronchography by means of ioduron B. Grud. khir. 5 no.2:119-121 Mr-Ap'63 (MIRA 17:2)

SHOTEMOR, Sh.; MUSHINA, L.N.

Possibilities of tomography and differential diagnosis between tumors and inflammatory processes of the lungs. Sov.med. 28 no.12:33-37 D '65. (MIRA 18:12)

1. 2-ya kafedra rentgenologii i radiologii (zav.- prof. Yu.N. Sokolov) TSentral'nogo instituta usovershenstvovaniya vrachey, Moskva.

SOV/179-59-3-7/45

AUTHORS: Kel'zon, A.S. and Mushina, N. I. (Leningrad)

TITLE: Determination of Vibrations of Fast Rotors with a Tensioned Spring (Issledovaniye vibratsiy bystrokhodnykh rotorov s uchetom natyaga pruzhiny)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1959, Nr 3, pp 49-52 (USSR)

ABSTRACT: The type of rotor under discussion is illustrated in Fig 1 (Refs 1 and 2). The rotor itself 3 revolves in the footstep bearing 7 and in the collar bearing 11. Both are attached to the sleeve 2 which is shaped in the form of a sphere at its top. Vibrations produced in this system can be determined if the coordinates x, y, z are assumed to have their origin O in the centre of the sphere. The spring 9 is tightened to a certain initial tension N_1. The coordinates of the centre of gravity, which is situated above the point O, are x_c, y_c, z_c. The distance from the centre of gravity to O is ℓ_2, that between O and a lower rest point A (x_1, y_1, z_1) is ℓ. The vibration of the rotor is defined

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by Eqs (1) and (2) or by Eq (3) for the constants Eq (4) The notations are as follows:

ω - a constant angular velocity,
A - moment of inertia in respect to the axis of symmetry,
B_0 - moment of inertia for the rotor and sleeve in respect to the equatorial axis which passes through the point O,
Q - weight of the rotor and sleeve,
α - the angle between the horizon and the contact surface between the collar 5 and the cylinder 4,
N_2 - the horizontal component of the cylinder 4,
r - the distance between the rotor axis and the reaction point on the cylinder 4,
c_1 - coefficient of the spring rigidity,
c_2 - coefficient of the spring rigidity reduced to the horizontal axis,
ρ - displacement of the point A on the rotor.

If the complex variable $y + iz = \rho e^{i\varphi}$ is introduced, then from Eq (3) Eqs (5) are obtained, the second equation of which can be integrated as shown by Eq (6). The first

equation of Eq (5) can be determined as Eqs (8) and (9) if the expression (7) is substituted. Thus, it can be seen that ρ_{max} can be defined as Eq (10) for the moment t_1, Eq (11). The moment t_2 for $\rho = 0$ can be expressed by Eq (12). The relationship of ρ and φ can be shown as in Eq (13). The graph illustrating the variations of the amplitude and the phase of rotor vibrations (ρ and φ) in relation to the time is given in Fig 2. The coordinates of the point A in this case will be Eq (14) and the frequency of ρ ($0 \leqslant \rho \leqslant \rho_{max}$) will be Eq (15). The phase φ will have the frequency Eq (16) which does not depend on the initial conditions. The constrained vibrations of this system can be defined if a mass m is added at a distance e from the axis of symmetry and at a distance b from O. Then, the differential equations describing the motion will take the forms of Eqs (17) and (18), which can be solved, according to Ref (3), as Eqs (19) to (21). The critical angular velocity ω_* will be equal to Eq (22). Acknowledgments are made to

Determination of Vibrations of Fast Rotors with a Tensioned Spring

A. I. Lur'ye and Yu. V. Dolgolenko for their advice. There are 2 figures and 5 references, 4 of which are Soviet and 1 German.

SUBMITTED: January 8, 1959

KEL'ZON, A.S. (Leningrad); MUSHINA, N.I. (Leningrad)

Vibration of a self-centering centrifuge. Izv.AN SSSR.Otd.tekh.nauk. Mekh.i mashinostr. no.3:98-101 My-Je '61. (MIRA 14:6)
(Centrifuges—Vibration)

MUSHIN, YE. A., PEREL'MAN, A. I., TOPCHIEV, A. V. and KRENTZEL, B. A. (USSR)

Sintez kristallicheskovoc poliviniltsiklogeksana
Synthesis of crystalline polyvinylcyclohexane
IUPAC S I:118-24

report presented at the Intl. Symposium on Macromolecular Chemistry, Moscow, 14-18 June 60.

5.3831

67572

~~5(3)~~ SOV/20-130-2-28/69

AUTHORS: Topchiyev, A. V., Academician, Mushina, Ye. A., Perel'man, A. I., Krentsel', B. A.

TITLE: Synthesis of Polyvinylcyclohexane

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 130, Nr 2, pp 344 - 345 (USSR)

ABSTRACT: There are no publication data on the polymerization of the vinyl derivatives of cyclohexane. Therefore, the authors wanted to investigate the possibility of producing polyvinylcyclohexane, and the influence of the nature of the catalyst on the properties of the polymer. Vinylcyclohexane was obtained from the cyclohexylethyl alcohol (Ref 1, see Scheme). This alcohol was synthesized in 2 ways: I) by the action of an absolutely dry gaseous ethylene oxide on magnesium chlorocyclohexane (produced by the Grignard reaction) in ethereal solution (Refs 2,3); II) by hydrogenation of phenylethyl alcohol on Raney's nickel catalyst at 160° and a pressure of 100 atm. The yield was ~ 50%. Vinylcyclohexane was obtained by acetylation of the cyclohexyl alcohol and by pyrolysis of the acetate (Ref 1). 2 catalysts

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Synthesis of Polyvinylcyclohexane SOV/20-130-2-28/69

were used for the polymerization of the vinylcyclohexane: a)a chromic-oxide-, and b) an organo-metallic catalyst. Carefully dehydrated heptane or benzene was used with a) as a solvent for the monomer. The authors' experiments showed that an addition of triisobutyl aluminum (50% solution in heptane) doubles the polymer yield. The properties (crystallinity, viscosity, etc) remain unchanged (Fig 1 a, b, p 318). The polymerization b) was carried out in a current of purified nitrogen at 80°. Triisobutyl aluminum with titanium tetrachloride was used as a catalyst. According to preliminary data, the polymer yield was ~ 30%. No ash content was found in the product polymerized on the chromic-oxide catalyst. The product polymerized on $(iso\text{-}C_4H_9)_3$ + $TiCl_4$ contains 1% of ashes. Polyvinylcyclohexane is a white, finely-disperse powder melting at 325°, and soluble in organic solvents. The characteristic viscosity was different depending on the nature of the catalyst used: it was 0.5 for a), and 1 - 1.5 for b). The elementary analysis in % yielded: C 87.22 (computed 87.27); H 12.80 (computed 12.72). The roentgenograms showed a high crystallinity of

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Synthesis of Polyvinylcyclohexane SOV/20-130-2-28/69

the polymer (Fig 1). Finally, the authors give a scheme for the presumable structure of the polymer. No by-products of the reaction were ascertained in the polymerization mentioned. There are 1 figure, 1 table, and 7 references, 6 of which are Soviet.

SUBMITTED: September 3, 1959

Card 3/3

S/204/63/003/001/007/013
E075/E436

AUTHORS: Topchiyev, A.V. (deceased), Kushina, Ye.A., Perel'man, A.I.

TITLE: Comparison of the reactive capacity of allylbenzene and allylcyclohexane during polymerization on chromia catalyst

PERIODICAL: Neftekhimiya, v.3, no.1, 1963, 74-81

TEXT: The polymerization was carried out in n-heptane or mineral oil and measured dilatometrically. The catalyst was 6% CrO_3 on silica-alumina and constituted 9% weight of the 35% monomer/solvent mixture. The temperature varied between 60 and 80°C. The rate of the polymerization for allylbenzene was slower (about 50% in the first 100 minutes) than that of allylcyclohexane. The rates decrease with time due to isomerization of the monomers. The activation energies for allylbenzene and allylcyclohexane are 14.0 and 11.0 kcal/mol respectively. Since these energies are similar, the difference in the polymerization rates is considered to be connected with the pre-exponential factor which expresses the different positioning of the molecules of allylbenzene and allylcyclohexane on the catalyst surface. As the adsorption of allyl-

Card 1/2

Comparison of the reactive ...

benzene from n-heptane exceeds that of allylcyclohexane 3 times it is postulated that the strong adsorption of the benzene ring during the squeezing out of allyl group from the catalyst surface prevents the interaction of π-electrons in the double bond of the monomer with the electronic orbits of the catalyst. The investigation of the reactive capacity of monomers of different structure could be facilitated by the study of their adsorptional properties on the catalysts. There are 8 figures and 3 tables.

ASSOCIATION: Institut neftekhimicheskogo sinteza AN SSSR
(Institute of Petrochemical Synthesis AS USSR)

SUBMITTED: June 9, 1962

ACCESSION NR: AP4043316 : S/0191/64/000/008/0003/0006

AUTHOR: Perel'man, A. I., Mushina, Ye. A., Topchiyev, A. V. (deceased)

TITLE: Investigation of the polymerization of vinylcyclohexane on the catalytic system triisobutylaluminum plus titanium tetrachloride

SOURCE: Plasticheskiye massy*, no. 8, 1964, 3-6

TOPIC TAGS: vinylcyclohexane, polyvinylcyclohexane, polymerization, polymerization catalyst, triisobutylaluminum, titanium tetrachloride, Ziegler Natta catalyst

ABSTRACT: The polymerization of vinylcyclohexane (99.7 - 99.8% pure) on the catalytic system Al $(i\text{-}C_4H_9)_3$+$TiCl_4$ was studied in a glass reaction vessel (dilatometer) in an atmosphere of pure dry nitrogen and a purified solvent (heptane or benzene) over a temperature range of 60-85C. The synthesis of vinylcyclohexane is also discussed. The experimental data showed that the optimum molar ratio of the catalyst components with respect to the yield and specific viscosity of the polymer is 1:1. On increasing the concentration of catalyst from 1 to 3%, the rate of polymerization increases and the specific viscosity decreases. An increase in the concentration of vinylcyclohexane in heptane leads to an increase in both the rate of polymerization and specific viscosity. On increasing the

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ACCESSION NR: AP4043316

temperature of polymerization from 60 to 80C, the specific viscosity decreases. The yield of polyvinylcyclohexane was about 50% (based on the monomer used). The experimental data showed that the polymerization of vinylcyclohexane with this catalytic system proceeds in the same way as the polymerization of other monomers with naphthene and aromatic rings on catalysts of the Ziegler-Natta type. The resulting polymer has a wide range of processing temperatures. The glass temp. = 09C, melting point = 325C. Polymerization in benzene or cyclohexane, which dissolve polyvinylcyclohexane readily, yields an amorphous polymer which behaves as a crystalline polymer during thermomechanical and thermographic analyses. Polyvinylcyclohexane has excellent dielectric properties; the dielectric loss value of 6×10^{-4} remains unchanged up to 200C. Polymerization on the Al $(i\text{-}C_4H_9)_3$ + $TiCl_4$ system is accompanied by isomerization of the monomer to ethylidenecyclohexane, which leads to a decrease in the polyvinylcyclohexane yield. "The authors express their gratitude to V. A. Kargin for his valuable advice during the experimental work, to G. P. Mikhaylov, N. A. Nechitaylo, M. V. Shishkina and I. Yu. Tsarevskaya for their assistance in the investigation of the structure and properties of the polymers, and to D. V. Mushenko, E. G. Lebedeva and V. S. Chachina for supplying the vinylcyclohexane; the average molecular weight of the polyvinylcyclohexane was determined by E. A. Razumovskaya, the presence of ethylidenecyclohexane was determined by A. T. Syyatoshenko using capillary chromatograph, and T. A. Komova and V. L.

ACCESSION NR: AP4043316

Shmonina also took part in the work." Orig. art. has: 11 figures and 3 formulas.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00

SUB CODE: OC, MT NO REF SOV: 015 OTHER: 010

Card 3/3

L 17086-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4 RM

ACCESSION NR: AP4047685 S/0204/64/004/005/0735/0740

AUTHOR: Topchiyev, A. V. (Deceased); Mushina, Ye.A.; Perel'man, A.I.; Shishkina, M.V.

TITLE: Relative activity of some monomers in the polymerization reaction on a chromium oxide catalyst

SOURCE: Neftekhimiya, v. 4., no. 5, 1964, 735-740

TOPIC TAGS: vinylcyclohexane, allylcyclohexane, allylbenzene, phenylbutene, phenyl pentene, polymerization catalyst, chromium oxide catalyst, aromatic polymer

ABSTRACT: The polymerizability of monomers containing naphthene and other aromatic rings in the presence of a chromium oxide catalyst was investigated in relation to their structure. The polymerization rate at different temperatures at a monomer concentration of 0.0022-0.0024 mole/ml in heptane, and with 10% catalyst by weight, was plotted in relation to the total amount of monomer and solvent. On the basis of these curves, the velocity constants and initial velocities were determined. The total activation energy was found to be about 12.5 kcal for all monomers even though the velocity values vary over a wide range. According to the kinetic characteristics, the relative activity of the monomer decreases if the naphthene ring is replaced by benzene and the vinyl group approaches the ring: allylcyclohexane > vinylcyclohexane > 5-phenyl-1-pentene > 4-phenyl-1-butene > allyl

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L 17086-65

ACCESSION NR: AP4047685

benzene. The relative activity of the monomers is increased by the removal of the vinyl group from the ring because the side chain becomes more flexible and the orientation of the monomer molecules on the surface of the catalyst favors the reaction of the vinyl group with the surface of the catalyst. The properties of the resulting polymers are tabulated. The relative activity was also increased in the presence of a chromium oxide catalyst or by the replacement of the benzene ring with cyclohexane. The isomerization of the monomer, proceeding as a side reaction parallel to the polymerization in the presence of a chromium oxide catalyst, was also investigated. The structure of the monomers before and after polymerization was investigated by their infrared spectra. With increasing temperature of polymerization of vinylcyclohexane, the isomerizing effect of the chromium oxide catalyst increased. "The authors express their gratitude to I. Yu. Tsarevskaya for the determination of the glass transition and melting points of the polymers and to A. T. Svyatoshenko for determining the composition of the isomerization product by capillary chromatography. T. A. Komova also took part in the experimental work."
Orig. art. has: 2 figures and 5 tables.

ASSOCIATION: Institut neftekhimicheskogo sinteza im. A. V. Topchiyeva AN SSSR (Institute of Petrochemical Synthesis, AN SSSR)

SUBMITTED: 020ct63 ENCL: 00 SUB CODE: GC, OC
NO REF SOV: 007 OTHER: 008

Card 2/2

MUSHINA-UDGODSKAYA, L.N.

X-ray therapy in calcareous bursitis of the shoulder joint. Sov. med. 22 no.12:57-60 D '58. (MIRA 12:1)

1. Iz 2-y kafedry rentgenologii i meditsinskoy radiologii (zav. - prof. Yu. N. Sokolov) Tsentral'nogo instituta usovershenstvovaniya vrachey (dir. V. P. Lebedeva) i Moskovskoy oblastnoy rentgenologicheskoy stantsii (zav. G.N. Shvabauer).

(BURSITIS, ther.
x-ray in calcific bursitis of shoulder joint (Rus))
(SHOULDER, dis.
calcific bursitis, x-ray ther. (Rus))
(RADIOTHERAPY, in various dis.
calcific bursitis of shoulder joint (Rus))

MUSHINA-UDGODSKAYA, L.N.

Effect of environmental temperature on the course of radiation sickness; experimental study [with summary in English]. Vest.rent. i rad. 33 no.3:23-27 My-Je '58 (MIRA 11:8)

1. Iz 2-y kafedry rentgenologii i radiologii (zav. - prof. Yu.N. Sokolov) TSentral'nogo instituta usovershenstvovaniya vrachey (dir. V.P. Lebedeva).

(ROENTGEN RAYS, effects,
total body, eff. of temperature on survival in rats (Rus))
(TEMPERATURE, effects,
on x-irradiated rats, on survival rate (Rus))

L 7910-66 EWT(m)/ETC/EWG(m)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) RDW/JD/JG

ACC NR: AP5025780 SOURCE CODE: UR/0363/65/001/009/1468/1475

AUTHOR: Mushinskiy, V. P.; Mushinskaya, K. M.

ORG: Kishinevskiy State University (Kishinevskiy gosudarstvennyy universitet)

TITLE: Substitution solid solutions in the system Ga_2Te_3--Ga_2Se_3

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 9, 1965, 1468-1475

TOPIC TAGS: telluride, gallium compound, physical chemistry properties, single crystal, solid solution, electric conductivity

ABSTRACT: The article presents the results of an x-ray and microstructural analysis of Ga_2Te_3--Ga_2Se_3. The microhardness and the electric and optic properties of the solid solutions were studied to establish a correlation between the changes in the composition and the lattice constant, on the one hand, and the physical properties on the other hand. The following nine compositions were synthesized for study: Ga_2Te_3, $7Ga_2Te_3 \cdot Ga_2Se_3$, $3Ga_2Te_3 \cdot Ga_2Se_3$, $1.5Ga_2Te_3$.

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UDC:541.123.5

L 7910-66

ACC NR: AP5025780

Ga_2Se_3, $Ga_2Te_3 \cdot Ga_2Se_3$, $Ga_2Te_3 \cdot 1.5Ga_2Se_3$, $Ga_2Te_3 \cdot 3Ga_2Se_3$, $Ga_2Te_3 \cdot 7Ga_2Se_3$, Ga_2Se_3. Results of x-ray analysis confirm the formation of a continuous series of solid solutions with the structure of zinc blende, within the limits of 100 to 40 mole % Ga_2Te_3. The whole series of Ga_2Te_3--Ga_2Se_3 alloys exhibit semiconducting properties. At temperatures greater than 200C, the conductivity of alloys of the Ga_2Te_3--Ga_2Se_3 system varies smoothly with a change in composition. The breadth of the forbidden band, calculated from the slope of the straight section of the curve in sigma=f(10^3/T), varies smoothly with a change in composition of the samples, from 1.5 ev for Ga_2Te_3 to 2.05 ev for Ga_2Se_3. The maxima on the reflection curves for single crystals of $7Ga_2Te_3 \cdot Ga_2Se_3$ and $3Ga_2Te_3 \cdot Ga_2Se_3$, with respect to the reflection maximum of the compound Ga_2Te_3, are shifted toward the side of shorter wave lengths; this is evidently connected with maintenance of the symmetry of the optical transitions during a change in the composition of the crystals from 100 to 75 mole % Ga_2Te_3. The article describes a technique for obtaining thin layers of alloys of the Ga_2Te_3--Ga_2Se_3 system. A study was made of the absorption spectrum of thin layers of these alloys, and a determination was made of the optical breadth of the forbidden zone ΔE_{opt}; the

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L 7910-66
ACC NR: AP5025780

value agrees well with the value of ΔE determined from the temperature dependence of the electrical conductivity. "The authors express their thanks to T. I. Lang for measurement of the microhardness." Orig. art. has: 7 figures and 1 table

SUB CODE: IC/ SUBM DATE: 20Apr65/ ORIG REF: 003/ OTH REF: 002

Card 3/3

L 23812-66 EWT(m)/ETC(f)/EWG(m)/EWP(t) IJP(c) RDW/JD/JG

ACC NR: AR6005204 SOURCE CODE: UR/0058/65/000/009/D074/D074

AUTHORS: Mushinskiy, V. P.; Mushinskaya, K. M.; Gramatskiy, V. I.

TITLE: Optical absorption in thin layers of the system Ga_2Te_3 -- Ga_2Se_3

SOURCE: Ref. zh. Fizika, Abs. 9D592

REF. SOURCE: Uch. zap. Kishinevsk. un-t, v. 75, 1964, 35-38

TOPIC TAGS: light absorption, gallium optic material, selenide, telluride, absorption spectrum, optic coating, absorption edge, activation energy

TRANSLATION: An investigation was made of the properties of several alloys of the Ga_2Te_3 -- Ga_2Se_3 system. Absorption spectra of thin layers of alloys of this system, obtained by the method of evaporating sintered bulk crystals in high vacuum, are presented. The substrate temperature was taken to be sufficiently high to obtain a layer with

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L 23812-66

ACC NR: AR6005204

crystalline structure. To obtain reproducible results, the layers were subjected to prolonged annealing in vacuum at temperatures which differed with the composition. The values of the photon energy ΔE_c, corresponding to the absorption edges, were calculated. The obtained dependence of the optical activation energy on the composition of the thin layers of the Ga_2Te_3 -- Ga_2Se_3 system indicates that the layers, in all probability, are solid solutions of the corresponding compositions. Bibliography, 12 titles. L. Trofimova.

SUB CODE: 20

Card 2/2

L 33753-66 EWT(m)/EWP(t)/ETI IJP(c) RDW/JD/JG

ACC NR: AR6016779 SOURCE CODE: UR/0081/65/000/023/B073/B073

AUTHOR: Mushinskiy, V. P.; Mushinskaya, K. M.; Gramatskiy, V. I.

TITLE: Optical absorption in thin layers of the Ga_2Te_3-Ga_2Se_3 system

SOURCE: Ref. zh. Khimiya, Abs. 23B532

REF SOURCE: Uch. zap. Kishinevsk. un-t, v. 75, 1964, 35-38

TOPIC TAGS: germanium, germanium based alloy, tellurium containing alloy, selenium containing alloy, absorption spectrum

ABSTRACT: Absorption spectra of thin alloy layers of the Ga_2Te_3-Ga_2Se_3 system obtained by evaporation in vacuum of large fused crystals were studied. Condensed layers of over 3μ thick were calcinated in vacuum. The energy of E_c photons corresponding to the boundary of absorption were calculated. ΔE_c changes linearly with the composition change from 0 to 75 mol% of Ga_2Se_3. The relationship obtained between the activation energy and the composition indicates that the layers are solid solutions. L. Trofimova.

SUB CODE: 11, 20/ SUBM DATE: none

Card 1/1 BLG

SMOLYAK, L.P.; MUSHINSKAYA, L.G.

Relict plants in White Russia. Sbor. nauch. rab. TSBS no.2: 168-170 '61. (MIRA 15:7)

(White Russia--Botany)

AVRAMENKO, B.I.; IPAT'YEV, A.N.; MISHINSKAYA, L.G.; SAVCHENKO, A.P.

Male sterility in plants induced by penetrating radiation. Dokl. AN BSSR 9 no.3:202-204 Mr '65. (MIRA 18:6)

1. Otdel genetiki i tsitologii AN BSSR.

AVRAMENKO, B.I.; IPAT'YEV, A.N.; MUSHINSKAYA, L.G.; SAVCHENKO, A.P.

Morphological and biological changes in plants subjected to gamma irradiation. Dokl. AN BSSR 9 no. 5:340-343 My '65 (MIRA 19:1)

1. Institut genetiki i tsitologii AN BSSR. Submitted February 28, 1964.

L 23922-66 - EWT(m)

ACC NR: AP6014957 SOURCE CODE: UR/0250/65/009/005/0340/0343

AUTHOR: Avramenko, B. I.; Ipat'yev, A. N.; Mushinskaya, L. G.; Savchenko, A. P.

ORG: Institute of Genetics and Cytology, AN BSSR (Institut genetiki i tsitologii AN BSSR)

TITLE: Morphological and biological changes in plants induced by gamma rays

SOURCE: AN BSSR. Doklady, v. 9, no. 5, 1965, 340-343

TOPIC TAGS: gamma ray, radiation plant effect, plant chemistry

ABSTRACT: Critical and sublethal doses of gamma rays stunted the growth of tomatoes, cucumbers, cabbage, mustard, radishes, beans, beets, and onions. Seeds exposed to such doses germinated 1-14 days later than did the control. Subsequent development was also slower. These doses likewise altered the plants' morphology, particularly the leaves. However, all the changes gradually disappeared by the time the plants flowered, indicating that plants recover at a certain stage of development, even after receiving very high doses of radiation. Irradiation also affected the biochemical composition of the plants. For example, it reduced the fat content of mustard and cabbage seeds below that of the control.

Low doses of gamma rays, on the other hand, had a stimulating effect. They hastened the ripening of the fruits and increased the plants' productivity. This paper was presented by Academician AN BSSR A. R. Zhebrak. Orig. art. has: 3 tables. [JPRS]

SUB CODE: 06 / SUBM DATE: 28Feb64 / ORIG REF: 007 / OTH REF: 003

Card 1/1

IZMAYLOV, N.A.; MUSHINSKAYA, S.Kh.; AIAPINA, A.V.

Effect of solvents on the adsorption of the dissolved substance.
Ukr.khim.zhur. 20 no.5:478-486 '54. (MLRA 8:1)

1. Khar'kovskiy nauchno-issledovatel'skiy khimiko-farmaticheskiy institut Ministerstva zdravookhraneniya SSSR.
(Solution (Chemistry)) (Adsorption)

MUSHINSKAYA, S. Kh.

MUSHINSKAYA, S. Kh. -- "The Laws of the Statics of Ion Exchange of Alkaloids and the Isolation of Their Solutions Using Ion-Exchange Tars." Min Higher Education Ukrainian SSR. Khar'kov Order of Labor Red Banner State U imeni A. M. Gor'kiy. Khar'kov, 1955. (Dissertation for the Degree of Candidate of Chemical Sciences.)

SO: Knizhnaya Letopis', No 5, Moscow, Feb 1956

MUSHINSKAYA, S. Kh.

AID P - 2758

Subject : USSR/Chemistry

Card 1/1 Pub. 119 - 6/6

Authors : Izmaylov, N. A., Yu. V. Shostenko, and S. Kh. Mushinskaya (Khar'kov)

Title : Principles of adsorption techniques for isolation of substances from solutions

Periodical : Usp. khim. 24, 3, 346-376, 1955

Abstract : Literature on the adsorption from solutions used in industry and the advantages of this method over extraction from solutions is reviewed. Selection of adsorbents and solvents is discussed. One table, 12 diagrams; 71 references (59 Russian: 1929-1955)

Institution : None

Submitted : No date

MUSHINSKAYA, S. Kh.

USSR/ Chemistry - Physical chemistry

Card 1/1 Pub. 22 - 26/25

Authors : Izmaylov, N. A., and Mushinskaya, S. Kh.

Title : Ion exchange characteristics of larger organic ions on synthetic ion-exchange resins

Periodical : Dok. AN SSSR 100/1, 101-104, Jan. 1, 1955

Abstract : The laws governing the exchange of large organic ions on synthetic ion-exchange resings (tars), are explained. The realation between the adsorption magnitude and the ion concentration was investigated at a constant batch/solution ration. The reduction of ion exchange constants for organic ions from less polar solvents than water is explained by the fact that the molecular adsorption of nonpolar substances from nonpolar solvents is reduced as result of increase of the adsorption potential of the solvents. Thirteen references: 9 USSR and 4 USA (1933-1953). Graphs.

Institution : The Scientific Research Chemical-Pharmaceutical Institute, Kharkov

Presented by: Academician P. A. Rebinder, November 1, 1954

IZMAYLOV, N.A. [deceased]; MUSHINSKAYA, S. Kh.

Thermodynamics of ion exchange of organic ions. Zhur. fiz. khim. 36 no.6:1210-1218 Je'62 (MIRA 17:8)

1. Khar'kovskiy khimiko-farmatsevticheskiy institut.

MUSHINSKI, Z.

MUSHINSKI, Z. Correct attitude of higher technical cadres toward rationalization. p. 4. Vol. 5, no. 11, Nov. 1955. RATSIONALIZATSIA. Sofiia, Bulgaria

SOURCE: East European Accessions List (EEAL) Vol 6, No. 4--April 1957

MUSHINSKI, Z.

MUSHINSKI, Z. Some recommendations for 1955. p. 5. Vol. 5, no. 11, Nov. 1955. RATSIONALIZATSIA. Sofiia, Bulgaria

SOURCE: East European Accessions List (EEAL) Vol 6, No. 4--April 1957

MUSHINSKIY, A.R., inzh. (g.Dnopropetrovsk)

Ways to prevent the damage of generators. Elek.i tepl.tiaga 6 no.2:17-18 F '62. (MIRA 15:2)
(Diesel locomotives)
(Electric generators)

RYNG, V.M., inzh.; SHPORT, N.S., inzh.; GAVRUTSKIY, A.Ye.; MUSHINSKIY, G.N.

Folding metal sheathing in Krivoy Rog Basin mines. Shakht.stroi. 4 no.2:15-19 F '60. (MIRA 13:5)

1. Rudoupravleniye imeni Dzerzhinskogo Nauchno-issledovatel'skogo geolog-razvedochnogo instituta, g.Krivoy Rog.
(Krivoy Rog--Iron mines and mining)
(Shaft sinking)

GAVRUTSKIY, A.Ye.; MUSHINSKIY, G.N.; SHPORT, N.S.

Using metallic folding formwork in shaft sinking. Sbor. nauch. trud. NIGRI no.7:11-14 '60. (MIRA 14:12)
(Shaft sinking)
(Concrete construction--Formwork)

SOV/137-58-9-19744

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9 p 232 (USSR)

AUTHOR: Mushinskiy, V.P.

TITLE: On the Electrical Conductivity of the Al-Se System (Ob elektro provodnosti sistemy Al-Se)

PERIODICAL: Uch. zap. Kishinevsk. un-t, 1957, Vol 29, pp 221-226

ABSTRACT: Alloys of the Al Se system were obtained by the Vekshinskiy method in the form of thin (0.1-1.0 μ) films from pure Se (99.99%) and Al (99.96%). The relationship of the conductivity σ of the films and the temperature was investigated in the -180 to +250°C temperature range. The resistivity increases with an increase in the concentration of Se, attaining 10^5 ohm·cm at 250°. A stable compound forms in the 81% range of the concentration of Se which corresponds to the formula Al_2Se_3. The relationship $\sigma(T)$ has a semiconductive character with an activation energy $\Delta E = 1.55$ ev in the high-temperature range. The Al_2Se_3 compound is analogous in the character of the variation of $\sigma(T)$ to semiconductors of the impurity type. The ionization energy of an impurity lies in the range of 0.02-0.08

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SOV/137-58-9-19744

On the Electrical Conductivity of the Al-Se System

ev. Specimens obtained by means of smelting are very unstable in air. They are rapidly decomposed and transformed into a yellow-brown powder, although their composition is close to that of Al_2Se_3.

1. Aluminum-selenium alloys--Conductivity 2. Thin films--Electrical properties
3. Thin films--Temperature factors

Card 2/2

82791
S/058/60/000/004/006/016
A003/A001

4

24.7700

Translation from: Referativnyy zhurnal. Fizika, 1960, No. 4, p. 213, # 9098

AUTHOR: Mushinskiy, V.P.

TITLE: Electrical Properties and Optical Absorptions of Thin Al_2Se_3 Films

PERIODICAL: Uch. zap. Kishinevsk. un-t, 1959, Vol. 39, pp. 85-90

TEXT: The electrical properties and the optical absorption in thin Al_2Se_3 layers were studied. The Al_2Se_3 compound in thin layers at a thickness of $d < 200$ Å has a high resistance. At a greater thickness, up to $d \approx 800$ Å, the specific resistance of the layers drops by several orders, then increases slowly and attains a value of 10^6 ohm·cm at a thickness of $\approx 1\ \mu$. Thin layers of stoichiometric composition of Al_2Se_3 and with an excess of Al as well as Se have a hole mechanism of conductivity. The Al_2Se_3 compound in thin layers has the maximum of the absorption coefficient in the visible part of the spectrum. The red edge of the principal absorption lies in the region $\lambda = 0.8\ \mu$. The width of the forbidden zone of the Al_2Se_3 compound which can be determined from the rei

Card 1/2

Electrical Properties and Optical Absorptions of Thin Al_2Se_3 Films

edge of the principal absorption, ΔE = 1.57 ev, agrees well with the value for Δ E obtained from the temperature dependence of the specific electric conductivity.

Author's conclusions

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

24(3) SOV/139-59-1-19/34

AUTHOR: Mushinskiy, V.P.

TITLE: An Investigation of Thin Films of Variable Composition of the System Aluminium-Selenium (Issledovaniye tonkikh sloyev peremennogo sostava sistemy alyuminiy-selen)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, 1959, Nr 1, pp 111-116 (USSR)

ABSTRACT: Electrical properties of thin films of Al-Se were investigated and the existence of the compound Al_2Se_3 was established. The electrical conductivity of this compound in the form of thin films was measured as a function of temperature and the film thickness. Al-Se films were obtained by evaporation in vacuum. The two components were evaporated simultaneously and were condensed on a base at various temperatures, as described by Vekshinskiy (Ref 5). The evaporation was carried out in a glass system at a residual pressure not higher than 3×10^{-5} mm Hg. Tungsten evaporators were at a distance of 8 cm from each other and were placed below the base onto which the substances were evaporated. The base was at a distance of 5 cm from the evaporators. The aluminium had Si and Fe impurities of less than 0.0010%. The selenium had Te and S impurities of 0.01% and 0.0006%

Card 1/3

An Investigation of Thin Films of Variable Composition of the System Aluminium-Selenium

respectively. Glass, quartz and mica plates were used as bases. X-ray analysis showed the presence of Al_2Se_3 in the case of bases heated above 200 °C. Fig 3 shows the dependence of the resistivity on the thickness of the film for different temperatures. For thicknesses greater than 300 Å the resistivity of an Al_2Se_3 film on a glass base at room temperature increased rapidly and reached a constant value at a thickness of 900 Å. As the temperature of the base increased, the thickness at which the constant value began shifted towards smaller thicknesses. The dependence of the specific electrical conductivity on temperature may be represented by:

$$\sigma = A_1 \exp(-\Delta E/2kT) + A_2 \exp(-\Delta E_1/2kT)$$

where $\Delta E = 1.55 - 1.60$ eV and $\Delta E_1 = 0.09 - 0.15$ eV. Fig 4 shows the temperature dependence of the electrical conductivity of Al_2Se_3 before (Curve 1) and after (Curve 2) annealing at 100°C. The annealing process was also carried out at 100°C in an atmosphere of air or oxygen. At room temperatures oxygen absorption is low but the

An Investigation of Thin Films of Variable Composition of the System Aluminium-Selenium

absorption increases appreciably beginning at 50-70°C. The absorption of oxygen by films whose composition is close to the stoichiometric composition leads to an increase in the electrical conductivity and the activation energy in the low-temperature region. The absorption of oxygen by Al_2Se_3 films is reversible. If the film is heated up to 300°C in a vacuum of the order of 10^{-5} mm Hg it assumes its original resistance again. Fig 5 shows the effect of absorbed oxygen on the electrical conductivity.

There are 5 figures and 14 references, of which 3 are German and 11 Soviet.

Card 3/3

ASSOCIATION: Kishinevskiy Gosuniversitet (Kishinev State University)

SUBMITTED: July 7, 1958

MUSHINSKIY, V.P.

Investigating the photoconductivity of thin layers of the system Al - Se. Izv. vys. ucheb. zav.; fiz. no.4:135-139 '59. (MIRA 13:3)

1.Kishinevskiy gosuniversitet.
(Aluminum-selenium alloys--Electric properties)

MUSHINSKIY, V. P., Cand Phys-Math Sci -- (diss) "Some electrical, optical and photoelectrical properties of the Al-Se system." L'vov, 1960. 10 pp; (Ministry of Higher and Secondary Specialist Education USSR, L'vov State Univ im Ivan Franko); 150 copies; price not given; (KL, 17-60, 140)

30636

S/081/61/000/020/012/089
B144/B101

24,7400 (1155,1454,1555)

AUTHORS: Mushinskiy, V. P., Svinarchuk, G. Z., Gramatskiy, V. I.

TITLE: Temperature dependence of absorption in thin Al_2Se_3 layers

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 20, 1961, 34-35, abstract 20B241 (Uch. zap. Kishinevsk. un-t, v. 55, 1960, 25-30)

TEXT: The temperature dependence (for temperatures from -183 to +200°C) of the forbidden-band width was spectroscopically studied in Al_2Se_3 layers of $>0.3\mu$ thickness. It has been established that the shifting of the absorption curves in the direction to shorter waves on temperature reduction and to longer waves on temperature increase is apparently due to a change in the forbidden-band width of Al_2Se_3 owing to the increased intensity of lattice vibrations and to the change in the character of the electron - lattice interaction. The temperature coefficient was also determined for the change in forbidden-band width $(5-6.4)\cdot10^{-4}$ ev/deg. [Abstracter's note: Complete translation.]

Card 1/1

29466
S/137/61/000/008/023/037
A060/A101

24.7700 (also 1164, 1395)

AUTHORS: Mushinskiy, V. P., Gramatskiy, V. I.

TITLE: Electrical characteristics of alloys of the aluminum-tellurium system

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 8, 1961, 5, abstract 8Zh25 ("Uch. zap. Kishinevsk. un-t", 1960, 55, 31-36)

TEXT: Results of a study of the electric conductivity of the Al-Te system are cited. The investigation was carried out on the distribution of resistivity along a layer of variable composition and on the temperature dependence of the resistance of the layers with different composition. Specimens for the investigation were obtained by the simultaneous evaporation in vacuum of Al and Te onto mica and glass plates 90 x 18 mm in size. The method of preparation of the specimens made it possible to obtain layers of variable composition with variation in concentration from 100% Al to 100% Te. The electrical characteristics were studied as a function of the concentration of the components which varied continuously along the specimen. The resistance of specimens with binary composition varies strongly along the length of the specimen, showing a sharp maximum at a

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Electrical characteristics of alloys ...

small segment (10 - 20 mm), whereas measurements of resistance of the layers of Al and Te separately did not yield such a distribution. As the temperature of the backing is raised, the resistance of the high-resistance segments of the film increases, and at the same time the range of concentrations within which the resistance is higher than the resistance of other portions of the film, is extended. The portion of the film with the highest resistance corresponds to the ratio of atomic concentrations 2 : 3, and on this basis it is hypothesized that compound Al_2Te_3 is formed here. The study of the temperature dependence of the resistance of various portions of one and the same film of the variable Al-Te composition has shown that it is different for different portions and varies smoothly with the variation of concentration of the components in the layer. The temperature dependence of the resistance of portions whose composition is close to that of Al_2Te_3 is of a semiconductor nature. In the range of medium temperatures ($\leq$ 130°C) the resistance of the layer varies little as the temperature increases. This is explained by the low value of the activation energy of impurities. Beginning from temperature 130 - 150°C a sharp drop of resistance is observed. The latter is connected with the occurrence of intrinsic conductivity in the specimen. The width of the forbidden zone is determined as 1.2 - 1.35 eV.

[Abstracter's note: Complete translation.]

A. Rusakov

Card 2/2

L 31057-65 EWT(l)/EWT(m)/EWP(t)/T/EEC(b)-2/EWP(b) IJP(c) RDW/JD/GG

ACCESSION NR: AI5004858 S/0058/64/000/011/E057/E057

30
B

SOURCE: Ref. zh. Fizika, Abs. 11E459

AUTHORS: Gramatskiy, V. I.; Mushinskiy, V. P.

TITLE: Some electric properties of thin layers of the Ga-Te system

CITED SOURCE: Uch. zap. Kishinevsk. un-t, v. 69, 1964, 38-40

TOPIC TAGS: gallium tellurium alloy, thin film, electric conductivity, thermoelectric power, temperature dependence

TRANSLATION: The authors investigated the electric conductivity (σ) and the thermoelectric power (α) of thin ($\sim 0.2\ \mu$) semiconductor films of compounds of the Ga-Te system, obtained by evaporation of bulky single and polycrystalline samples of GaTe(I) and Ga_2Te_3(II) in a vacuum $\sim 10^{-5}$ mm Hg. The films were condensed on glass and mica substrates and maintained at temperatures (T) ranging from room tempera-

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L 31057-65
ACCESSION NR: AR5004858

ture to 300C. It was established that the material of the substrate has little effect on the properties of the film. Measurements of σ and α for films of I and II were made in the interval of T from -183 to +300C. Both compounds displayed an identical character of the $\sigma(T)$ dependence: σ depends little on T at low temperatures and increases sharply starting with 120C, presumably as a result of a transition to intrinsic conductivity. The width of the forbidden band, determined from the slope of the $\ln\sigma$ vs. $1/T$ curve at high T, amounts to 1.65 and 1.56 eV for I and II, respectively. σ increases weakly with increasing temperature and has in the mean a value $\simeq$500 μV/deg. A. Zhdan.

SUB CODE: SS ENCL: 00

Card 2/2

L 32195-65 EEC(b)-2/EWT(1)/EWT(m)/EWP(b)/T/EWP(t) Pi-4 IJP(c) RDW/GG/JD/GS

ACCESSION NR: AT5005419 S/0000/64/000/001/0034/0034

AUTHOR: Mushinskiy, V. P.; Gramatskiy, V. I.

TITLE: Some optical and photoelectric properties of thin layers of the Ga-Te system

SOURCE: Nauchnaya konferentsiya molodykh uchenykh Moldavii, 3d. Trudy, no. 1: Yestestvenno-tekhnicheskiye nauki (Natural and technical sciences). Kishinev, Gosizdat Kartya Moldovenyaske, 1964, 34

TOPIC TAGS: absorption spectrum, reflection spectrum, photoconductivity, volt ampere characteristic, lux ampere characteristic, gallium telluride, semiconductor film

ABSTRACT: The absorption and reflection spectra (6,000-13,000A) and the photoconductivity of thin layers of Ga_2Te_3 and GaTe were studied over the temperature range from -183 to +150C. Photoconductivity curves showed some differences and, in Ga_2Te_3, depended on the particular production method. The note does not present any experimental data except for the statement that the temperature coefficient of the absorption spectra was the same for both systems and equal to $(4-6)10^{-4}$ eV/deg. The authors mention (likewise without any details) that they recorded the volt-

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L 32195-65

ACCESSION NR: AT5005419

ampere and lux-ampere characteristics. In one set of Ga_2Te_3 samples they noted an excited state of long lifetime.

ASSOCIATION: None

SUBMITTED: 07Feb64 ENCL: 00 SUB CODE: SS OP

NO REF SOV: 000 OTHER: 000

Card 2/2

85160

26.2420
9.4300 (1143, 1138, 1137)

S/139/60/000/005/007/031
E073/E135

AUTHORS: Mushinskiy, V.P., and Gramatskiy, V.I.

TITLE: Electric Conductivity and Optical Absorption of Thin Layers of the System Al—Te

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1960, No. 5, pp 43-49

TEXT: The results are described of studying the electric conductivity and the optical absorption of thin layers of a variable composition of the system Al—Te. The distribution was investigated of the resistance, the transparency and the reflection of the light along a layer of a variable composition, the temperature dependence of the resistance of layers with differing compositions, and the optical absorption as function of the conditions of producing the layers. The specimens were produced by means of a method described by Academician S.A. Vekshinskiy (Ref. 11) by simultaneous evaporation in vacuum of aluminium and tellurium. These substances were made to condense on glass and mica plates 18 x 90 mm^2. The temperature of the base was monitored by a copper-constantan thermocouple. According to the data of M. Khansen (Hansen) (Ref. 8), the

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S/139/60/000/005/007/031
E073/E135

Electric Conductivity and Optical Absorption of Thin Layers of the System Al—Te

diagram of state of the system Al—Te has only one singular point corresponding to the compound Al_2Te_3 containing 87.64 wt.% Te which fuses at 895 °C. It was to be anticipated that this compound will stand out from all the alloys of the Al—Te system not only by its fusion temperature but also by its other visible properties. The method applied by the authors of this paper enabled obtaining layers of variable composition with concentrations varying from 100% Al to 100% Te. It was found that the material of the base has little influence on the electric properties of the Al—Te layers. The evaporation was carried out under strictly identical conditions. The specific resistance of the layers depends on its thickness, increasing sharply from a certain thickness value onwards which is characteristic of a given substance, 0.09-0.10 microns in a given case. Therefore the measurements were carried out only on films with thicknesses exceeding 0.1 microns. At relatively low temperatures of the base Al_2Te_3 compounds form within a relatively narrow section of the film, for which the ratio of the atomic